

## Wilson Area School District Planned Course Guide

**Title of planned course:** 6th Grade Mathematics

**Subject Area:** Math

**Grade Level:** 6th

**Course Description:** This course is designed to extend a student's knowledge of mathematics within the areas of the number system, ratios and proportional relationships, expressions and equations, geometry and statistics and probability. Students will gain an opportunity to cultivate positive mathematical practices including problem-solving skills and the ability to reason through the implementation of lessons, instruction, and assessments aligned with the Pennsylvania Common Core Standards, real life applications, and the integration of technology.

**Time/Credit for this Course:** One Full Academic Year

**Curriculum Writing Committee:** Diana Partridge and Cindy Tereska

## Wilson Area School District Planned Course Materials

**Course Title:** Mathematics Grade 6

**Textbook:**

HMH into Math: Grade 6  
Houghton Mifflin Harcourt Publishing Company  
2020  
[www.hmhco.com](http://www.hmhco.com)

**Supplemental Books:**

Buckle Down Grade 6  
2008

**Teacher Resources:**

HMH into Math: Grade 6  
Houghton Mifflin Harcourt Publishing Company  
2020  
Volumes 1 and 2  
[www.hmhco.com](http://www.hmhco.com)

Buckle Down Grade 6 Mathematics  
2008

[www.khanacademy.org](http://www.khanacademy.org)  
<http://www.mobymax.com/PA6068>  
<https://app.studyisland.com/cfw/login/>  
[www.firstinmath.com](http://www.firstinmath.com)  
[www.ck12.org](http://www.ck12.org)

*One Grain of Rice: A Mathematical Folktale*  
Demi  
1997

*Sir Circumference and the First Round Table*  
Cindy Neuschwander  
1997

*Sir Circumference and the Dragon of Pi*  
Cindy Neuschwander  
1999

*The Multiplying Menace Divides*  
Pam Calvert  
2011

## Curriculum Map

### **August/September:** Data Analysis and Probability

- Display Numerical Data
- Measures of center and variability

### **October:** Expressions

- Write and evaluate numerical expressions
- Write algebraic expressions from verbal descriptions
- Parts of an expression
- Evaluate algebraic expressions
- Equivalent expressions

### **November:** Number System (Operations with Decimals)

- Compute with whole numbers and decimals
- Solve expressions with decimals

### **November/December:** Number System (Integers)

- Positive and negative numbers
- Opposites
- Number line
- Coordinate planes
- Comparing numbers
- Absolute value
- Distance

### **January:** Equations

- Solve equations and inequalities using substitution
- Write algebraic expressions from situations
- Solve equations
- Inequalities
- Independent and dependent variables

### **February:** The Number System

- Division of Fractions
- Factors and Multiples
- Calculate GCF and LCM

### **March:** Ratios and Proportional Relationships

- Ratios and ratio language
- Understand unit rates
- Ratios in tables and graphs
- Unit rate problems
- Percent problems

**April:** Geometry

- Area (rectangles, triangles, trapezoids)
- Volume with fractional edge lengths
- Coordinate geometry
- Surface area of rectangular and triangular prism
- Nets

**May/June:** Mixed review & Circles

- Mixed review of 6th grade topics
- Parts of a circle
- Calculate radius and diameter
- Calculate circumference and area of a circle

## Curriculum Scope & Sequence

**Planned Course:** 6th Grade Mathematics

**Unit 1:** Data Analysis and Probability

- Display Numerical Data
- Measures of center and variability

**Time frame:** 6 weeks

**State Standards:** CC.2.4.6.B.1 Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions.

**Anchor(s) or adopted anchor:** M06.D-S.1.1, M06.D-S.1.1.1, M06.D-S.1.1.2, M06.D-S.1.1.3  
M06.D-S.1.1.4

**Essential content/objectives:** At end of the unit, students will be able to:

- Display, analyze, and summarize numerical data sets in relation to their context.
- Display numerical data in plots on a number line, including line plots, histograms, and box-and whisker plots.
- Determine quantitative measures of center (e.g., median, mean, mode) and variability (e.g., range, interquartile range, mean absolute deviation).
- Describe any overall pattern and any deviations from the overall pattern with reference to the context in which the data were gathered.
- Relate the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

**Core Activities:** Students will complete/participate in the following:

- Module 14: Data Collection and Analysis (student workbook pg 437-461)
  - Lesson 1: Explore Statistical Data Collection
    - Small group and center options (teacher manual pg 439C)
    - Students sort and generate statistical and nonstatistical questions
  - Lesson 2: Display Data in Dot Plots
    - Small group and center options (teacher manual pg 445C)
    - Play games to collect data and create dot plots
  - Lesson 3: Make Histograms and Frequency Tables
    - Small group and center options (teacher manual pg 453C)
    - Project: The Right Price (teacher manual pg 435)
- Module 15: Measure of Center (student workbook pg 463-483)
  - Lesson 1: Explore Mean as Fair Share
    - Calculate mean from a variety of sources (dot plots, lists, bar graphs, pictures)
    - Small group and center options (teacher manual pg 465C)
  - Lesson 2: Find Measure of Center
    - Small group and center options (teacher manual pg 471C)
  - Lesson 3: Choose a Measure of Center
    - Small group and center options (teacher manual pg 477C)
- Module 16: Variability and Data Distribution (student workbook pg

485-525)

- Lesson 1: Explore Patterns of Data
  - Small group and center options (teacher manual pg 487C)
- Lesson 2: Display Data in Box Plots
  - Small group and center options (teacher manual pg 493C)
- Lesson 3: Find Mean Absolute Deviation
  - Small group and center options (teacher manual pg 501C)
- Lesson 4: Explore Measures of Variability
  - Small group and center options (teacher manual pg 509C)
- Lesson 5: Describe Distributions
  - Small group and center options (teacher manual pg 517C)

**Extensions:**

- Integrate technology for further exploration of mathematical concepts
  - [CK 12: Unit 10-Statistics](#)
  - [Khan Academy: Unit 11- Data and Statistics](#)
  - MobyMax: Statistics
  - Study Island: Statistics and Probability
- Students generate data to complete data analysis (compute measure of center and variability and generate data displays)
- Students make a symmetry selfie
- Teacher generated digital practice for statistics skills (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets, Quizizz)

**Remediation:**

- Integration of manipulatives (graph paper for data displays, online data display generator)
- Additional small-group instruction (flip chart lessons from book Volume 2: Unit 5: Modules 14-16)
- Differentiated materials, assignments, and assessments

**Instructional Methods:**

- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives as appropriate
- Centers/stations
- Small and large-group direct instruction
- Small and large-group discussion
- Differentiated instruction
- Practice with online programs (i.e. Khan Academy, Mobymax, Study Island, First in Math, [CK12](#))

### **Materials & Resources:**

- HMH into Math: Grade 6, Houghton Mifflin Harcourt Publishing Company, 2020
- Volume 2: Unit 5: Modules 14-16: Pages 435-525
- [www.hmhco.com](http://www.hmhco.com)
- [www.khanacademy.org](http://www.khanacademy.org)
- <http://www.mobymax.com/PA6068>
- <https://app.studyisland.com/cfw/login/>
- [www.firstinmath.comwww.ck12.org](http://www.firstinmath.comwww.ck12.org)
- Teacher-generated guided note sheets
- Practice book and masters
- Calculators
- Manipulatives
- Flashcards
- Digital practice (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets)

### **Assessments:**

- Diagnostic:
  - Questioning
  - Small and large group discussion
  - Quick Checks
  - Student observation
  - Online resources
- Formative:
  - Quizzes
  - Worksheets and activities
  - Online resources
- Summative
  - End-of-unit assessment and/or projects

## Curriculum Scope & Sequence

**Planned Course:** 6th Grade Mathematics

**Planned Course:** Mathematics Grade 6

**Unit 2:** Expressions

- Write and evaluate numerical expressions
- Write algebraic expressions from verbal descriptions
- Parts of an expression
- Evaluate algebraic expressions
- Equivalent expressions

**Time frame:** 4 weeks

**State Standards:** CC.2.2.6.B.1 Apply and extend previous understandings of arithmetic to algebraic expressions

**Anchor(s) or adopted anchor:** M06.B-E.1.1, M06.B-E.1.1.1, M06.B-E.1.1.2, M06.B-E.1.1.3, M06.B-E.1.1.4, M06.B-E.1.1.5

**Essential content/objectives:** At end of the unit, students will be able to:

- Identify, write, and evaluate numerical and algebraic expressions.
- Write and evaluate numerical expressions involving whole-number exponents.
- Write algebraic expressions from verbal descriptions. Example: Express the description “five less than twice a number” as  $2y - 5$ .
- Identify parts of an expression using mathematical terms (e.g., sum, term, product, factor, quotient, coefficient, quantity). Example: Describe the expression  $2(8 + 7)$  as a product of two factors.
- Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems. Example: Evaluate the expression  $b^2 - 5$  when  $b = 4$ .
- Apply the properties of operations to generate equivalent expressions. Example 1: Apply the distributive property to the expression  $3(2 + x)$  to produce the equivalent expression  $6 + 3x$ . Example 2: Apply the distributive property to the expression  $24x + 18y$  to produce the equivalent expression  $6(4x + 3y)$ . Example 3: Apply properties of operations to  $y + y + y$  to produce the equivalent expression  $3y$ .

**Core Activities:** Students will complete/participate in the following:

- Module 8: Numerical and Algebraic Expressions (student workbook pg 231-269)
  - Lesson 1: Understand and Apply Exponents
    - Read One Grain of Rice by Demi
    - Small group and center options (teacher manual pg 233C)
  - Lesson 2: Write and Evaluate Numerical Expressions for Situations
    - Small group and center options (teacher manual pg 239C)
  - Lesson 3: Write Algebraic Expressions to Model Situations
    - Small group and center options (teacher manual pg 247C)



- Lesson 4: Interpret and Evaluate Algebraic Expressions
  - Small group and center options (teacher manual pg 253C)
- Lesson 5: Identify and Generate Equivalent Algebraic Expressions
  - Small group and center options (teacher manual pg 261C)

### **Extensions:**

- Integrate technology for further exploration of mathematical concepts
  - [CK 12: Unit 6-Expressions](#)
  - [Khan Academy: Unit 4-Exponents and order of operations](#)
  - [Khan Academy Unit 6-Variables and Expressions](#)
  - MobyMax: Numbers: Equations: Expressions
  - Study Island: Expressions and Equations
- Play like terms Uno
- Teacher generated digital practice for expressions skills (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets, Quizizz)

### **Remediation:**

- Integration of manipulatives (multiplication chart, algebra tiles)
- Additional small-group instruction (flip chart from book Volume 2: Unit 3: Modules 8)
- Differentiated materials, assignments, and assessments

### **Instructional Methods:**

- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives as appropriate
- Centers/stations
- Small and large-group direct instruction
- Small and large-group discussion
- Differentiated instruction
- Practice with online programs (i.e. Khan Academy, Mobymax, Study Island, First in Math, [CK12](#))

### **Materials & Resources:**

- HMH into Math: Grade 6, Houghton Mifflin Harcourt Publishing Company, 2020
- Volume 2: Unit 3: Modules 8: Pages 229-269
- [www.hmhco.com](http://www.hmhco.com)
- One Grain of Rice: A Mathematical Folktale, Demi, 1997
- [www.khanacademy.org](http://www.khanacademy.org)
- <http://www.mobymax.com/PA6068>
- <https://app.studyisland.com/cfw/login/>
- [www.firstinmath.com](http://www.firstinmath.com)
- [www.ck12.org](http://www.ck12.org)
- Teacher-generated guided note sheets
- Practice book and masters
- Calculators
- Manipulatives
- Flashcards

**Assessments:**

- Diagnostic:
  - Questioning
  - Small and large group discussion
  - Quick Checks
  - Student observation
  - Online resources
- Formative:
  - Quizzes
  - Worksheets and activities
  - Online resources
- Summative
  - End-of-unit assessment and/or projects

## Curriculum Scope & Sequence

**Planned Course:** 6th Grade Mathematics

**Unit 3:** Number System (Operations with Decimals)

- Compute with whole numbers and decimals
- Solve expressions with decimals

**Time frame:** 4 weeks

**State Standards:** CC.2.1.6.E.2 Identify and choose appropriate processes to compute fluently with multi-digit numbers.

**Anchor(s) or adopted anchor:** M06.A-N.2.1, M06.A-N.2.1.1

**Essential content/objectives:** At end of the unit, students will be able to:

- Compute with multi-digit numbers using the four arithmetic operations with or without a calculator.
- Solve problems involving operations (+, −, ×, and ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems.

**Core Activities:** Students will complete/participate in the following:

- Module 4: Fluency with Multi-Digit Decimal Operations (student workbook pg 101-133)
  - Lesson 1: Add and Subtract Multi-Digit Decimals
    - Small group and center options (teacher manual pg 103C)
  - Lesson 2: Multiply Multi-Digit Decimals
    - Small group and center options (teacher manual pg 109C)
  - Lesson 3: Divide Multi-Digit Whole Numbers
    - Small group and center options (teacher manual pg 115C)
    - Project: Crazy for Cocoa (teacher manual pg 1)
  - Lesson 4: Divide Multi-Digit Decimals
    - Small group and center options (teacher manual pg 121C)
  - Lesson 5: Apply Operations with Multi-Digit Decimals
    - Small group and center options (teacher manual pg 127C)

**Extensions:**

- Integrate technology for further exploration of mathematical concepts
  - [CK 12: Unit 4-Operations with Decimals and Whole Numbers](#)
  - [Khan Academy: Unit 2- Arithmetic with Rational Numbers](#)
  - MobyMax: Numbers: Whole Number Division
  - MobyMax: Numbers: Decimals
  - Study Island: The Number System: Compute with Whole Numbers and Decimals
- Play 4 operations with decimal games using dice
- Teacher generated digital practice for decimal skills (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets, Quizizz)

**Remediation:**

- Integration of manipulatives (graph paper, multiplication charts, counting blocks, number tiles and cubes)
- Additional small-group instruction (flip chart from book Volume 1: Unit 1: Modules 4)
- Differentiated materials, assignments, and assessments

**Instructional Methods:**

- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives as appropriate
- Centers/stations
- Small and large-group direct instruction
- Small and large-group discussion
- Differentiated instruction
- Practice with online programs (i.e. Khan Academy, Mobymax, Study Island, First in Math, [CK12](#))

**Materials & Resources:**

- HMH into Math: Grade 6, Houghton Mifflin Harcourt Publishing Company, 2020
- Volume 1: Unit 1: Modules 4: Pages 101-133
- [www.hmhco.com](http://www.hmhco.com)
- [www.khanacademy.org](http://www.khanacademy.org)
- <http://www.mobymax.com/PA6068>
- <https://app.studyisland.com/cfw/login/>
- [www.firstinmath.com](http://www.firstinmath.com)
- [www.ck12.org](http://www.ck12.org)
- Teacher-generated guided note sheets
- Practice book and masters
- Calculators
- Manipulatives
- Flashcards
- Digital practice (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets)

**Assessments:**

- Diagnostic:
  - Questioning
  - Small and large group discussion
  - Quick Checks
  - Student observation
  - Online resources
- Formative:
  - Quizzes
  - Worksheets and activities
  - Online resources
- Summative
  - End-of-unit assessment and/or projects

## Curriculum Scope & Sequence

**Planned Course:** 6th Grade Mathematics

**Unit 4:** Number System (Integers)

- Positive and negative numbers
- Opposites
- Number line
- Coordinate planes
- Comparing numbers
- Absolute value
- Distance

**Time frame:** 4 weeks

**State Standards:** CC.2.1.6.E.4 Apply and extend previous understandings of numbers to the system of rational numbers.

**Anchor(s) or adopted anchor:** M06.A-N.3.1, M06.A-N.3.1.1, M06.A-N.3.1.2, M06.A-N.3.1.3

**Essential content/objectives:** At end of the unit, students will be able to:

- Understand that positive and negative numbers are used together to describe quantities having opposite directions or values and locations on the number line and coordinate plane.
- Represent quantities in real-world contexts using positive and negative numbers, explaining the meaning of 0 in each situation (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge).
- Determine the opposite of a number and recognize that the opposite of the opposite of a number is the number itself (e.g.,  $-(-3) = 3$ ; 0 is its own opposite).
- Locate and plot integers and other rational numbers on a horizontal or vertical number line; locate and plot pairs of integers

**Core Activities:** Students will complete/participate in the following:

- Module 1: Integer Concepts (student workbook pg 3-27)
  - Lesson 1: Identify and Interpret Integers
    - Small group and center options (teacher manual pg 5C)
  - Lesson 2: Compare and Order Integers on a Number Line
    - Small group and center options (teacher manual pg 13C)
  - Lesson 3: Find and Apply Absolute Value
    - Small group and center options (teacher manual pg 21C)
- Module 2: Rational Number Concepts (student workbook pg 29-57)
  - Lesson 1: Interpret Rational Numbers
    - Small group and center options (teacher manual pg 31C)
  - Lesson 2: Compare Rational Numbers on a Number Line
    - Small group and center options (teacher manual pg 37C)
  - Lesson 4: Order Rational Numbers
    - Small group and center options (teacher manual pg 51C)
- Module 11: Polygons on the Coordinate Plane (student workbook pg 339-373)
  - Lesson 1: Graph Rational Numbers on the Coordinate Plane

- Small group and center options (teacher manual pg 341C)
- Lesson 2: Graph Polygons on the Coordinate Plane
  - Small group and center options (teacher manual pg 349C)
- Lesson 3: Find Distance on the Coordinate Plane
  - Small group and center options (teacher manual pg 357C)
- Lesson 4: Find Perimeter and Area on the Coordinate Plane
  - Small group and center options (teacher manual pg 365C)

### **Extensions:**

- Integrate technology for further exploration of mathematical concepts
  - [CK 12: Unit 5-Rational Numbers](#)
  - [Khan Academy: Unit 5- Negative Numbers](#)
  - MobyMax: Numbers: Opposite Numbers
  - MobyMax: Numbers: Negative and Positive Numbers
  - MobyMax: Numbers: Rational Numbers on the Number Line
  - MobyMax: Numbers: Ordering and Absolute Value
  - Study Island: The Number System: Positive and Negative Numbers
  - Study Island: The Number System: Opposites
  - Study Island: The Number System: Number Line
  - Study Island: The Number System: Coordinate Planes
  - Study Island: The Number System: Comparing Numbers
  - Study Island: The Number System: Absolute Value
  - Study Island: The Number System: Distance
- Play Integer War with cards
- Make a large coordinate grid on the floor for students to move on
- Play Coordinate Plane Battleship
- Teacher generated digital practice for integer skills (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets, Quizizz)

### **Remediation:**

- Integration of manipulatives (use of number line, use of positive/negative chips)
- Additional small-group instruction (flip chart from book Volume 1: Unit 1: Modules 1-2)
- Differentiated materials, assignments, and assessments

### **Instructional Methods:**

- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives as appropriate
- Centers/stations
- Small and large-group direct instruction
- Small and large-group discussion
- Differentiated instruction
- Practice with online programs (i.e. Khan Academy, Mobymax, Study Island, First in Math, [CK12](#))

### **Materials & Resources:**

- HMH into Math: Grade 6, Houghton Mifflin Harcourt Publishing Company, 2020
- Volume 1: Unit 1: Modules 1-2: Pages 1-57
- Volume 2: Unit 4: Module 11: Pages 339-373
- [www.hmhco.com](http://www.hmhco.com)
- [www.khanacademy.org](http://www.khanacademy.org)
- <http://www.mobymax.com/PA6068>
- <https://app.studyisland.com/cfw/login/>
- [www.firstinmath.com](http://www.firstinmath.com)
- [www.ck12.org](http://www.ck12.org)
- Teacher-generated guided note sheets
- Practice book and masters
- Calculators
- Manipulatives
- Flashcards
- Digital practice (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets)

### **Assessments:**

- Diagnostic:
  - Questioning
  - Small and large group discussion
  - Quick Checks
  - Student observation
  - Online resources
- Formative:
  - Quizzes
  - Worksheets and activities
  - Online resources
- Summative
  - End-of-unit assessment and/or projects

## Curriculum Scope & Sequence

**Planned Course:** 6th Grade Mathematics

**Unit 5:** Equations

- Solve equations and inequalities using substitution
- Write algebraic expressions from situations
- Solve equations
- Inequalities
- Independent and dependent variables

**Time frame:** 4 weeks

**State Standards:** CC.2.2.6.B.2 Understand the process of solving a one-variable equation or inequality and apply to real-world and mathematical problems.

**Anchor(s) or adopted anchor:** M06.B-E.2.1, M06.B-E.2.1.1, M06.B-E.2.1.2, M06.B-E.2.1.3, M06.B-E.2.1.4

**Essential content/objectives:** At end of the unit, students will be able to:

- Create, solve, and interpret one variable equations or inequalities in real-world and mathematical problems.
- Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
- Write algebraic expressions to represent real-world or mathematical problems.
- Solve real-world and mathematical problems by writing and solving equations of the form  $x + p = q$  and  $px = q$  for cases in which  $p$ ,  $q$ , and  $x$  are all non-negative rational numbers.
- Write an inequality of the form  $x > c$  or  $x < c$  to represent a constraint or condition in a real-world or mathematical problem and/or represent solutions of such inequalities on number lines.

**Core Activities:** Students will complete/participate in the following:

- Module 9: Solve Problems Using Equations and Inequalities (student workbook pg 271-309)
  - Lesson 1: Write Equations to Represent Situations
    - Small group and center options (teacher manual pg 273C)
    - Project: Art in the Expression (teacher manual pg 239)
  - Lesson 2: Use Addition and Subtraction Equations to Solve Problems
    - Small group and center options (teacher manual pg 279C)
  - Lesson 3: Use Multiplication and Division Equations to Solve Problems
    - Small group and center options (teacher manual pg 287C)
  - Lesson 4: Use One-Step Equations to Solve a Variety of Problems
    - Small group and center options (teacher manual pg 295C)
  - Lesson 5: Write and Graph Inequalities
    - Small group and center options (teacher manual pg 301C)
- Module 10: Real-World Relationships Between Variables (student workbook pg 311-335)



- Lesson 1: Represent Equations in Tables and Graphs
  - Small group and center options (teacher manual pg 313C)
- Lesson 2: Write Equations from Verbal Descriptions
  - Small group and center options (teacher manual pg 321C)
- Lesson 3: Write Equations from Tables and Graphs
  - Small group and center options (teacher manual pg 327C)

### **Extensions:**

- Integrate technology for further exploration of mathematical concepts
  - CK 12: [Unit 7-Equations](#)
  - CK 12: [Unit 8-Inequalities](#)
  - Khan Academy: Unit 7- [Equations and Inequalities](#)
  - MobyMax: Equations: Solving Equations using Algebra
  - MobyMax: Equations: Linear Functions
  - MobyMax: Equations: Inequalities
  - Study Island: Expressions and Equations: Solve Equations and Inequalities Using Substitution
  - Study Island: Expressions and Equations: Solve Equations
  - Study Island: Expressions and Equations: Inequalities
  - Study Island: Expressions and Equations: Independent and Dependent Variables
  - [Visual Balances on Geogebra](#)
- Teacher generated digital practice for equations/inequalities skills (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets, Quizizz)

### **Remediation:**

- Integration of manipulatives (multiplication chart, note sheet on greater/less than signs, balance scale)
- Additional small-group instruction (flip chart from book Volume 2: Unit 3: Modules 9-10)
- Differentiated materials, assignments, and assessments

### **Instructional Methods:**

- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives as appropriate
- Centers/stations
- Small and large-group direct instruction
- Small and large-group discussion
- Differentiated instruction
- Practice with online programs (i.e. Khan Academy, Mobymax, Study Island, First in Math, [CK12](#))

### **Materials & Resources:**

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- Volume 2: Unit 3: Modules 9-10: Pages 271-335
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- <http://www.mobymax.com/PA6068>
- <https://app.studyisland.com/cfw/login/>
- [www.firstinmath.com](http://www.firstinmath.com)
- [www.ck12.org](http://www.ck12.org)
- Teacher-generated guided note sheets
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### **Assessments:**

- Diagnostic:
  - Questioning
  - Small and large group discussion
  - Quick Checks
  - Student observation
  - Online resources
- Formative:
  - Quizzes
  - Worksheets and activities
  - Online resources
- Summative
  - End-of-unit assessment and/or projects

## Curriculum Scope & Sequence

**Planned Course:** 6th Grade Mathematics

**Unit 6:** The Number System

- Division of Fractions
- Factors and Multiples
- Calculate GCF and LCM

**Time frame:** 4 weeks

**State Standards:** CC.2.1.6.E.3 Develop and/or apply number theory concepts to find common factors and multiples.

CC.2.1.6.E.1 Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

**Anchor(s) or adopted anchor:** M06.A-N.2.2, M06.A-N.2.2.1, M06.A-N.2.2.2, .M06.A-N.1.1, M06.A-N.1.1.1

**Essential content/objectives:** At end of the unit, students will be able to:

- Apply number theory concepts (specifically, factors and multiples).
- Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12.
- Apply the distributive property to express a sum of two whole numbers, 1 through 100, with a common factor as a multiple of a sum of two whole numbers with no common factor. Example: Express  $36 + 8$  as  $4(9 + 2)$ .
- Solve real-world and mathematical problems involving division of fractions
- Interpret and compute quotients of fractions (including mixed numbers), and solve word problems involving division of fractions by fractions.

**Core Activities:** Students will complete/participate in the following:

- Module 2: Solve Problems Using Equations and Inequalities (student workbook pg 43-50)
  - Lesson 3: Find and Apply LCM and GCF
    - Small group and center options (teacher manual pg 43C)
- Module 3: Fraction Division (student workbook pg 59-99)
  - Lesson 1: Understand Fraction Division
    - Read *The Multiplying Menace Divides*
    - Small group and center options (teacher manual pg 61C)
  - Lesson 2: Explore Division of Fractions with Unlike Denominators
    - Small group and center options (teacher manual pg 69C)
  - Lesson 3: Explore Division of Mixed Numbers
    - Small group and center options (teacher manual pg 77C)
  - Lesson 4: Practice and Apply Division of Fractions and Mixed Numbers
    - Small group and center options (teacher manual pg 85C)
  - Lesson 5: Practice Fraction Operations
    - Small group and center options (teacher manual pg 91C)

**Extensions:**

- Integrate technology for further exploration of mathematical concepts
  - CK 12: [Unit 3-Division with Fractions](#)
  - Khan Academy: [Unit 2-Arithmetic with Rational Numbers](#)
  - MobyMax: Numbers: Factoring
  - MobyMax: Numbers: Dividing Fractions by Fractions
  - Study Island: The Number System: Division of Fractions
  - Study Island: The Number System: Factors and Multiples
- Teacher generated digital practice for fraction/factor/multiple skills (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets, Quizizz)

**Remediation:**

- Integration of manipulatives (fractions bars, multiplication chart, factor chart)
- Additional small-group instruction (flip chart from book Volume 1: Module 2: Lesson 3)
- Additional small-group instruction (flip chart from book Volume 1: Module 3)
- Differentiated materials, assignments, and assessments

**Instructional Methods:**

- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives as appropriate
- Centers/stations
- Small and large-group direct instruction
- Small and large-group discussion
- Differentiated instruction
- Practice with online programs (i.e. Khan Academy, Mobymax, Study Island, First in Math, [CK12](#))

**Materials & Resources:**

- HMH into Math: Grade 6, Houghton Mifflin Harcourt Publishing Company, 2020
- Volume 1: Module 2: Lesson 3
- Volume 1: Module 3
- [www.hmhco.com](http://www.hmhco.com)
- *The Multiplying Menace Divides*. Pam Calvert, 2011
- [www.khanacademy.org](http://www.khanacademy.org)
- <http://www.mobymax.com/PA6068>
- <https://app.studyisland.com/cfw/login/>
- [www.firstinmath.com](http://www.firstinmath.com)
- [www.ck12.org](http://www.ck12.org)
- Teacher-generated guided note sheets
- Practice book and masters
- Calculators
- Manipulatives
- Flashcards
- Digital practice (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets)

**Assessments:**

- Diagnostic:
  - Questioning
  - Small and large group discussion
  - Quick Checks
  - Student observation
  - Online resources
- Formative:
  - Quizzes
  - Worksheets and activities
  - Online resources
- Summative
  - End-of-unit assessment and/or projects

## Curriculum Scope & Sequence

**Planned Course:** 6th Grade Mathematics

**Unit 7:** Ratios and Proportional Relationships

- Ratios and ratio language
- Understand unit rates
- Ratios in tables and graphs
- Unit rate problems
- Percent problems

**Time frame:** 4 weeks

**State Standards:** CC.2.1.6.D.1 Understand ratio concepts and use ratio reasoning to solve problems.

**Anchor(s) or adopted anchor:** M06.A-R.1.1, M06.A-R.1.1.1, M06.A-R.1.1.2, M06.A-R.1.1.3, M06.A-R.1.1.4, M06.A-R.1.1.5.

**Essential content/objectives:** At end of the unit, students will be able to:

- Represent and/or solve real world and mathematical problems using rates, ratios, and/or percents
- Use ratio language and notation (such as 3 to 4, 3:4, 3/4) to describe a ratio relationship between two quantities
- Find the unit rate  $a/b$  associated with a ratio  $a:b$  (with  $b \neq 0$ ) and use rate language in the context of a ratio relationship
- Construct tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and/or plot the pairs of values on the coordinate plane. Use tables to compare ratios
- Solve unit rate problems including those involving unit pricing and constant speed
- Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percentage

**Core Activities:** Students will complete/participate in the following:

- Module 5: Ratios and Rates (student workbook pg 137-175)
  - Lesson 1: Understand the Concept of Language of Ratios
    - Small group and center options (teacher manual pg 139C)
  - Lesson 2: Represent Ratios and Rates with Tables and Graphs
    - Small group and center options (teacher manual pg 147C)
  - Lesson 3: Compare Ratios and Rates
    - Small group and center options (teacher manual pg 153C)
  - Lesson 4: Find and Apply Unit Rates
    - Small group and center options (teacher manual pg 159C)
  - Lesson 5: Solve Ratio and Rate Problems Using Proportional Reasoning
    - Small group and center options (teacher manual pg 167C)
- Module 6: Apply Ratios and Rates to Measurement (student workbook pg 177-201)
  - Lesson 1: Use Ratio Reasoning with Circle Graphs

- Small group and center options (teacher manual pg 179C)
  - Lesson 2: Use Rate Reasoning to Convert Within Measurement Systems
    - Small group and center options (teacher manual pg 185C)
  - Lesson 3: Use Rate Reasoning to Convert Between Measurement Systems
    - Small group and center options (teacher manual pg 193C)
- Module 7: Understand and Apply Percent (student workbook pg 203-227)
  - Lesson 1: Understand, Express, and Compare Percent Ratios
    - Small group and center options (teacher manual pg 205C)
  - Lesson 2: Use Strategies to Find a Percent of a Quantity
    - Small group and center options (teacher manual pg 213C)
    - Project: Record-Deal Ratios (teacher manual pg 135)
  - Lesson 3: Solve a variety of Percent Problems
    - Small group and center options (teacher manual pg 221C)

### **Extensions:**

- Integrate technology for further exploration of mathematical concepts
  - CK 12: [Unit 1- Ratios](#)
  - Khan Academy: [Unit 1: Ratios](#)
  - MobyMax: Ratios
  - Study Island: Ratios and Proportional Relationships
- Use grocery ads to calculate unit price
- Teacher generated digital practice for ratio skills (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets, Quizizz)

### **Remediation:**

- Integration of manipulatives (multiplication chart)
- Additional small-group instruction (flip chart from book Volume 1: Unit 2: Modules 5-7)
- Differentiated materials, assignments, and assessments

### **Instructional Methods:**

- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives as appropriate
- Centers/stations
- Small and large-group direct instruction
- Small and large-group discussion
- Differentiated instruction

Practice with online programs (i.e. Khan Academy, Mobymax, Study Island, First in Math, [CK12](#))

### **Materials & Resources:**

- HMH into Math: Grade 6, Houghton Mifflin Harcourt Publishing Company, 2020
- Volume 1: Unit 2: Modules 5-7: Pages 135-227
- [www.hmhco.com](http://www.hmhco.com)
- [www.khanacademy.org](http://www.khanacademy.org)

- <http://www.mobymax.com/PA6068>
- <https://app.studyisland.com/cfw/login/>
- [www.firstinmath.com](http://www.firstinmath.com)
- [www.ck12.org](http://www.ck12.org)
- Teacher-generated guided note sheets
- Practice book and masters
- Calculators
- Manipulatives
- Flashcards
- Digital practice (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets)

**Assessments:**

- Diagnostic:
  - Questioning
  - Small and large group discussion
  - Quick Checks
  - Student observation
  - Online resources
- Formative:
  - Quizzes
  - Worksheets and activities
  - Online resources
- Summative
  - End-of-unit assessment and/or projects



## Curriculum Scope & Sequence

**Planned Course:** 6th Grade Mathematics

**Unit 8:** Geometry

- Area (rectangles, triangles, trapezoids)
- Volume with fractional edge lengths
- Coordinate geometry
- Surface area of rectangular and triangular prism
- Nets

**Time frame:** 5 weeks

**State Standards:** CC.2.3.6.A.1 Apply appropriate tools to solve real-world and mathematical problems involving area, surface area, and volume.

**Anchor(s) or adopted anchor:** M06.C-G.1.1, M06.C-G.1.1.1, M06.C-G.1.1.2, M06.C-G.1.1.3, M06.C-G.1.1.4, M06.C-G.1.1.5, M06.C-G.1.1.6

**Essential content/objectives:** At end of the unit, students will be able to:

- Find area, surface area, and volume by applying formulas and using various strategies.
- Determine the area of triangles and special quadrilaterals (i.e., square, rectangle, parallelogram, rhombus, and trapezoid). Formulas will be provided.
- Determine the area of irregular or compound polygons.
- Determine the volume of right rectangular prisms with fractional edge lengths. Formulas will be provided.
- Given coordinates for the vertices of a polygon in the plane, use the coordinates to find side lengths and area of the polygon (limited to triangles and special quadrilaterals). Formulas will be provided.
- Represent three-dimensional figures using nets made of rectangles and triangles.
- Determine the surface area of triangular and rectangular prisms (including cubes). Formulas will be provided.

**Core Activities:** Students will complete/participate in the following:

- Module 12: Area of Triangles and Special Quadrilaterals (student workbook pg 375-409)
  - Lesson 1: Develop and Use the Formula for Area of Parallelograms
    - Small group and center options (teacher manual pg 377C)
  - Lesson 2: Develop and Use the Formula for Area of Triangles
    - Small group and center options (teacher manual pg 385C)
  - Lesson 3: Develop and Use the Formula for Area of Trapezoids
    - Small group and center options (teacher manual pg 393C)
  - Lesson 4: Find Area of Composite Figures
    - Small group and center options (teacher manual pg 401C)
- Module 13: Surface Area and Volume (student workbook pg 411-433)
  - Lesson 1: Explore Nets and Surface Area
    - Construct 3D shapes from nets
    - Project: Think Outside the Box (teacher manual pg 337)

- Small group and center options (teacher manual pg 413C)
- Lesson 2: Find Volume of Rectangular Prisms
  - Small group and center options (teacher manual pg 421C)
- Lesson 3: Solve Volume Problems
  - Small group and center options (teacher manual pg 427C)

### **Extensions:**

- Integrate technology for further exploration of mathematical concepts
  - CK 12: [Unit 9- Surface Area and Volume](#)
  - Khan Academy: [Unit 8: Plane Figures](#)
  - Khan Academy: [Unit 10: 3D Figures](#)
  - MobyMax: Geometry
  - Study Island: Geometry
- Calculate volume and surface area of boxes
- Teacher generated practice for geometry skills (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets, Quizizz)

### **Remediation:**

- Integration of manipulatives (Polygon Tiles, 3D solids, Number Cubes, Aperiodic Tiles)
- Additional small-group instruction (flip charts from book Volume 2: Unit 4: Modules 11-13)
- Differentiated materials, assignments, and assessments

### **Instructional Methods:**

- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives as appropriate
- Centers/stations
- Small and large-group direct instruction
- Small and large-group discussion
- Differentiated instruction
- Practice with online programs (i.e. Khan Academy, Mobymax, Study Island, First in Math, [CK12](#))

### **Materials & Resources:**

- HMH into Math: Grade 6, Houghton Mifflin Harcourt Publishing Company, 2020
- Volume 2: Unit 4: Modules 12-13: Pages 373-433
- [www.hmhco.com](http://www.hmhco.com)
- [www.khanacademy.org](http://www.khanacademy.org)
- <http://www.mobymax.com/PA6068>
- <https://app.studyisland.com/cfw/login/>
- [www.firstinmath.com](http://www.firstinmath.com)
- [www.ck12.org](http://www.ck12.org)
- Teacher-generated guided note sheets
- Practice book and masters
- Calculators
- Manipulatives
- Flashcards

- Digital practice (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets)

**Assessments:**

- Diagnostic:
  - Questioning
  - Small and large group discussion
  - Quick Checks
  - Student observation
  - Online resources
- Formative:
  - Quizzes
  - Worksheets and activities
  - Online resources
- Summative
  - End-of-unit assessment and/or projects

## Curriculum Scope & Sequence

**Planned Course:** 6th Grade Mathematics

**Unit 9:** Mixed Review & Circles

- Mixed review of 6th grade topics
- Parts of a circle
- Calculate radius and diameter
- Calculate circumference and area of a circle

**Time frame:** 4 weeks

**State Standards:** CC.2.3.7.A.1 Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume.

**Anchor(s) or adopted anchor:** M07.C-G.2.2, M07.C-G.2.2.1

**Essential content/objectives:** At end of the unit, students will be able to:

- Determine radius and diameter.
- Find the area and circumference of a circle. Solve problems involving area and circumference of a circle(s). Formulas will be provided.

**Core Activities:** Students will complete/participate in the following:

- Using data gathered from previous assessments and benchmarks to individualize instruction and reteach 6th grade standards where proficiency has not been demonstrated
- Parts of a circle (radius, diameter, chord, sector, center point, central angle, arc)
  - Read Sir Circumference and the First Round Table
- Grade 7: Module 10: Analyze Figures to Find Circumference and Area (student workbook pg 327-340)
  - Lesson 1: Derive and Apply Formulas for Circumference
    - Small group and center options (teacher manual pg 327C)
    - Read Sir Circumference and the Dragon of Pi
  - Lesson 2: Derive and Apply a Formula for the Area of a Circle
    - Small group and center options (teacher manual pg 333C)

**Extensions:**

- Integrate technology for further exploration of mathematical concepts
  - Use any digital resources previously listed that students need more practice with
  - CK 12: [Grade 7: Unit 6- Area and Volume of 2D and 3D Figures](#)
  - Khan Academy: [Grade 7: Unit 6: Geometry](#)
  - MobyMax: Grade 7: Geometry
  - Study Island: Grade 7: Geometry: Circles
- Teacher generated practice for mixed review/ circle skills (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets, Quizizz)

**Remediation:**

- Integration of manipulatives (manipulatives from previous units, circle grids)
- Additional small-group instruction (flip charts from previous units)
- Differentiated materials, assignments, and assessments

**Instructional Methods:**

- Spiral review/warm-up
- Direct instruction/note-taking
- Guided practice with skills
- Partner practice with skills
- Independent practice with skills
- Utilization of manipulatives as appropriate
- Centers/stations
- Small and large-group direct instruction
- Small and large-group discussion
- Differentiated instruction
- Practice with online programs (i.e. Khan Academy, Mobymax, Study Island, First in Math, [CK12](#))

**Materials & Resources:**

- HMH into Math: Grade 6, Houghton Mifflin Harcourt Publishing Company, 2020
  - Volumes 1 and 2
- [www.hmhco.com](http://www.hmhco.com)
- HMH into Math: Grade 7, Houghton Mifflin Harcourt Publishing Company, 2020
- *Sir Circumference and the First Round Table*, Cindy Neuschwander, 1997
- *Sir Circumference and the Dragon of Pi*, Cindy Neuschwander, 1999
- [www.khanacademy.org](http://www.khanacademy.org)
- <http://www.mobymax.com/PA6068>
- <https://app.studyisland.com/cfw/login/>
- [www.firstinmath.com](http://www.firstinmath.com)
- [www.ck12.org](http://www.ck12.org)
- Teacher-generated guided note sheets
- Practice book and masters
- Calculators
- Manipulatives
- Flashcards
- Digital practice (i.e. Google Docs, Google Slides, Nearpod, Classkick, Edpuzzle, Google Sheets)

**Assessments:**

- Diagnostic:
  - Questioning
  - Small and large group discussion
  - Quick Checks
  - Student observation
  - Online resources
- Formative:
  - Quizzes
  - Worksheets and activities
  - Online resources

- Summative
  - End-of-unit assessment and/or projects